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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/813,720

03/31/2004

Shashishekara Sitharamarao Talya

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EXAMINER

VERDIER, CHRISTOPHER M

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ART UNIT

PAPER NUMBER

3745

DATE MAILED: 05/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/813,720

Applicant(s)

TALYA ET AL.

Examiner

Christopher Verdier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-17 is/are allowed.
- 6) ☒ Claim(s) 1, 4-10 and 18-29 is/are rejected.
- 7) ☒ Claim(s) 2 and 3 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3-31-04</u> . | 6) <input type="checkbox"/> Other: ____. |

Specification

The disclosure is objected to because of the following informalities: Appropriate correction is required.

Paragraph 7, first sentence, is non-idiomatic.

In paragraph 7, line 7, “is” should be deleted.

In paragraph 31, line 7, “of” (first occurrence) should be deleted.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claims 6, 14, and 26, which recite at least two high efficiency injector assemblies having identical sizes, have no antecedent basis in the specification.

Claim 7, which recites that the flow rate of the at least one needle valve injector assembly is different from a flow rate of the at least one high efficiency injector assembly, has no antecedent basis in the specification.

Claim 8, which recites that an effective cross-sectional flow area of the at least one needle valve injector assembly is smaller than an effective cross-sectional flow area of the at least one high efficiency injector assembly, has no antecedent basis in the specification.

Claims 10 and 17, which recite that the control circuit includes a programmed microprocessor, have no antecedent basis in the specification.

Claim 15, which recites that a flow path of the at least one needle valve injector assembly is different from a flow path of the at least one high efficiency injector assembly, has no antecedent basis in the specification.

Claim 21, which recites substantially simultaneously regulating flow through a needle valve of a needle valve injector assembly and a high efficiency valve of a high efficiency injector assembly to direct a flow of water from a distributor to a runner, has no antecedent basis in the specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 6-8, 18-21, 23-24, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent 10-26,072 (figures 1-2). Note the Pelton turbine system comprising a runner 7 mounted for rotation and configured to drive a generator, a distributor 1 for directing a flow of water to the runner, at least one high efficiency injector assembly comprising a high efficiency valve 11a/12/13 configured to provide the flow of water from the distributor to the runner, and at least one needle valve injector assembly comprising a needle valve 11 for regulating the overall flow of water from the distributor to the runner. The high efficiency injector assemblies and the at least one needle valve injector assembly are alternately

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disposed in the distributor. The high efficiency injector assemblies have identical sizes, and a flow rate of the at least one needle valve injector assembly is different from a flow rate of the at least one high efficiency injector assembly. An effective cross-sectional flow area of the at least one needle valve injector assembly is smaller than an effective cross-sectional flow area of the at least one high efficiency injector assembly. The Pelton turbine injector assembly is retrofittable and the high efficiency valves 12, 13 are configured either to provide a fully open flow path between the distributor and the runner of the Pelton turbine or a fully closed flow path in a closed position. Also disclosed is a method for operating the Pelton turbine, comprising opening the needle valve 11 of the needle valve injector assembly and the valve of the high efficiency injector assembly 11a/12/13 to a direct flow of water from the distributor to the runner, and controlling the needle valve of the needle valve injector assembly to regulate a desired flow of water from the distributor to the runner. The high efficiency injector assembly and the needle valve injector assembly are controlled to provide the desired flow of water from the distributor to the runner. In figures 1-2, the flow is regulated substantially simultaneously through the needle valve 11 of the needle valve injector assembly and the high efficiency valve 11a of the high efficiency injector assembly to direct the flow of water from the distributor to the runner, and the needle valve injector assembly is controlled to provide a desired flow from the distributor to the runner. The needle valve injector assembly is disposed between the distributor and the runner, and the at least one high efficiency injector assembly is disposed between the distributor and the runner to direct a portion of overall flow of water from the distributor to the runner.

Claims 1, 4-8, 18-20, and 23-26 are rejected under 35 U.S.C. 102(b) as being anticipated by European Patent 1,308,619. Note the Pelton turbine system comprising a runner 1 mounted for rotation and configured to drive a generator 2, an unnumbered distributor for directing a flow of water to the runner, at least one high efficiency injector assembly comprising a high efficiency valve 5/9 configured to provide the flow of water from the distributor to the runner, and at least one needle valve injector assembly comprising a needle valve 4 for regulating the overall flow of water from the distributor to the runner. The high efficiency injector assemblies and the at least one needle valve injector assembly are alternately disposed in the distributor. A number of the needle valve injector assemblies and a number of high efficiency injector assemblies are selected based upon power requirements of the Pelton turbine and a range of flow between the distributor and the runner. The high efficiency injector assemblies have identical sizes, and a flow rate of the at least one needle valve injector assembly is different from a flow rate of the at least one high efficiency injector assembly. An effective cross-sectional flow area of the at least one needle valve injector assembly is smaller than an effective cross-sectional flow area of the at least one high efficiency injector assembly. The Pelton turbine injector assembly is retrofittable and the high efficiency valves 9 are configured either to provide a fully open flow path between the distributor and the runner of the Pelton turbine or a fully closed flow path in a closed position. Also disclosed is a method for operating the Pelton turbine, comprising opening the needle valve 4 of the needle valve injector assembly and the valve of the high efficiency injector assembly 9 to a direct flow of water from the distributor to the runner, and controlling the needle valve of the needle valve injector assembly to regulate a desired flow of water from the distributor to the runner. The high efficiency injector assembly and the needle valve injector

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assembly are controlled to provide the desired flow of water from the distributor to the runner.

The needle valve injector assembly is disposed between the distributor and the runner, and the at least one high efficiency injector assembly is disposed between the distributor and the runner to direct a portion of overall flow of water from the distributor to the runner.

Claim 18 is rejected under 35 U.S.C. 102(b) as being anticipated by Tuerk 249,274. Note the retrofittable Pelton turbine injector assembly for improving the efficiency of a Pelton turbine, further comprising a high efficiency valve G configured either to provide a fully open flow path between a distributor v and a runner D of the Pelton turbine or a fully closed flow path in a closed position.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Japanese Patent 10-26,072 or European Patent 1,308,619. The Japanese Patent 10-26,072 or European Patent 1,308,619 disclose Pelton turbine systems substantially as claimed as set forth above, including respective high efficiency injector assemblies 12/13 and 9, but do not disclose a control circuit configured to automatically operate the high efficiency injector assembly to provide a fully open flow path between the distributor and the runner in a fully opened position or to fully close the flow path between the runner and the distributor in a closed position (claim 9), and do not disclose that the control circuit includes an appropriately programmed microprocessor (claim 10).

Official Notice is taken that high efficiency injector assemblies are conventionally provided with a control circuit configured to automatically operate the high efficiency injector assembly to provide a fully open flow path or a fully closed flow path, with the control circuit including a programmed microprocessor, for the purpose of providing accurate and automated valve control.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the high efficiency injector assemblies of either Japanese Patent 10-26,072 or European Patent 1,308,619 such that they include a control circuit configured to

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automatically operate the high efficiency injector assembly to provide a fully open flow path between the distributor and the runner in a fully opened position or to fully close the flow path between the runner and the distributor in a closed position, with the control circuit including an appropriately programmed microprocessor, for the purpose of providing accurate and automated valve control.

Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 10-26,072. The Japanese Patent 10-26,072 (figure 2) discloses a method for operating a Pelton turbine substantially as claimed as set forth above, including regulating flow through a needle valve 11 of a needle valve injector assembly and a high efficiency valve 12/13 of a high efficiency injector assembly to direct a flow of water from a distributor 1 to a runner 7, and controlling the needle valve injector assembly to provide a desired flow from the distributor to the runner.

However, the Japanese Patent 10-26,072 does not disclose that regulating flow through the needle valve 11 of the needle valve injector assembly and the high efficiency valve 12/13 of the high efficiency injector assembly take place substantially simultaneously (claim 21), and does not disclose automatically operating the high efficiency injector assembly to provide a fully open flow path between the distributor and the runner in a fully opened position or to fully close the flow path between the runner and the distributor in a closed position (claim 22).

It would have been an obvious engineering expedient at the time the invention was made to a person having ordinary skill in the art to substantially simultaneously regulate flow through the needle valve 11 of the needle valve injector assembly and the high efficiency valve 12/13 of the high efficiency injector assembly of the Japanese Patent 10-26,072, for the purpose of providing more accurate control of the amount of water flowing to the runner. With regard to claim 22, which recites that the high efficiency injector assembly is automatically operated to provide a fully open flow path between the distributor and the runner in a fully opened position or to fully close the flow path between the runner and the distributor in a closed position, Official Notice is taken that high efficiency injector assemblies are conventionally provided with a control circuit configured to automatically operate the high efficiency injector assembly to provide a fully open flow path or a fully closed flow path, for the purpose of providing accurate and automated valve control. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to automatically operate the high efficiency injector assembly, for the purpose of providing accurate and automated valve control.

Claims 21-22 are also rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent 1,308,619. The European Patent 1,308,619 discloses a method for operating a Pelton turbine substantially as claimed as set forth above, including regulating flow through a needle valve 4 of a needle valve injector assembly and a high efficiency valve 9 of a high efficiency injector assembly to direct a flow of water from a distributor to a runner 1, and controlling the needle valve injector assembly to provide a desired flow from the distributor to the runner.

However, the European Patent 1,308,619 does not disclose that regulating flow through the needle valve 4 of the needle valve injector assembly and the high efficiency valve 9 of the high efficiency injector assembly take place substantially simultaneously (claim 21), and does not disclose automatically operating the high efficiency injector assembly to provide a fully open flow path between the distributor and the runner in a fully opened position or to fully close the flow path between the runner and the distributor in a closed position (claim 22).

It would have been an obvious engineering expedient at the time the invention was made to a person having ordinary skill in the art to substantially simultaneously regulate flow through the needle valve 4 of the needle valve injector assembly and the high efficiency valve 9 of the high efficiency injector assembly of the European Patent 1,308,619, for the purpose of providing more accurate control of the amount of water flowing to the runner. With regard to claim 22, which recites that the high efficiency injector assembly is automatically operated to provide a fully open flow path between the distributor and the runner in a fully opened position or to fully close the flow path between the runner and the distributor in a closed position, Official Notice is taken that high efficiency injector assemblies are conventionally provided with a control circuit configured to automatically operate the high efficiency injector assembly to provide a fully open flow path or a fully closed flow path, for the purpose of providing accurate and automated valve control. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to automatically operate the high efficiency injector assembly, for the purpose of providing accurate and automated valve control.

Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 10-26,072. The Japanese Patent (figure 6) discloses a prior art arrangement whereby needle valve injector assemblies 11 are disposed between a distributor 1 and a runner 7 of a Pelton turbine to direct flow from the distributor to the runner. However, the Japanese Patent (figure 6) does not disclose removing at least one needle valve injector assembly from the Pelton turbine and disposing at least one high efficiency injector assembly between the distributor and the runner in place of the at least one removed needle valve injector assembly to direct a portion of overall flow from the distributor to the runner (claim 27), with the at least one high efficiency injector assembly and the at least one needle valve injector assembly being alternately disposed in the distributor (claim 28).

Figure 1 of the Japanese Patent 10-26,072 teaches that in a Pelton turbine having a runner 7 mounted for rotation and configured to drive a generator, and a distributor 1 for directing a flow of water to the runner, at least one high efficiency injector assembly is provided comprising a high efficiency valve 11a configured to provide the flow of water from the distributor to the runner, and at least one needle valve injector assembly comprising a needle valve 11 is provided for regulating the overall flow of water from the distributor to the runner. The high efficiency injector assemblies and the at least one needle valve injector assembly are alternately disposed in the distributor. The arrangement is provided for the purpose of providing simplified flow control and reduced cost.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to apply the teachings of figure 1 of the Japanese Patent 10-26,072 to the prior art arrangement in figure 6 of the Japanese Patent 10-26,072 such that in prior art figure 6 of the Japanese Patent 10-26,072, at least one needle valve injector assembly is removed from the Pelton turbine and at least one high efficiency injector assembly is disposed between the distributor and the runner in place of the at least one removed needle valve injector assembly to direct a portion of overall flow from the distributor to the runner, with the at least one high efficiency injector assembly and the at least one needle valve injector assembly being alternately disposed in the distributor, as taught by figure 1 of the Japanese Patent 10-26,072, for the purpose of providing simplified flow control and reduced cost.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 10-26,072 as applied to claim 27 above, and further in view of European Patent 1,308,619. The modified Pelton turbine of Japanese Patent 10-26,072 shows all of the claimed subject matter including the number of needle valve injector assemblies 11 and the number of high efficiency injector assemblies 11a being selected based on a range of flow of water between the distributor and the runner, but does not show that the number of needle valve injector assemblies and the number of high efficiency injector assemblies are selected based upon both power requirements of the Pelton turbine as well as on a range of flow of water between the distributor and the runner.

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The European Patent 1,308,619 shows a Pelton turbine having a number of needle valve injector assemblies 4 and a number of high efficiency injector assemblies 5/9 that are selected based upon both power requirements of the Pelton turbine as well as on a range of flow of water between the distributor and the runner (see the English abstract), for the purpose of providing for optimum efficiency.

It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the modified Pelton turbine of Japanese Patent 10-26,072 such that the number of needle valve injector assemblies and the number of high efficiency injector assemblies are selected based upon both power requirements of the Pelton turbine as well as on a range of flow of water between the distributor and the runner, as taught by European Patent 1,308,619, for the purpose of providing for optimum efficiency.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mariner and Makaroff are cited to show Pelton-type turbines with flow valves.

Allowable Subject Matter

Claims 11-17 are allowed.

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Claims 2-3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.V.
May 2, 2006


Christopher Verdier
Primary Examiner
Art Unit 3745